

REMARKS

Claim Status

Claims 1-12, 18-24, and 28-31 remain for consideration and are thought to be allowable over the cited art. Claim 1 is amended to include the limitations of claim 3 (now cancelled); claim 6 is amended to include the voltage source pin from claim 10 along with a selector arrangement; claim 8 is amended to depend from claim 7 and thereby remove the alleged antecedent basis issue raised for claim 9; claim 10 is amended to remove limitations added to claim 5; claim 20 is amended to depend from claim 19 and thereby remove the alleged antecedent basis issue raised for claim 21; and claims 13-17 and 25-27 are cancelled without prejudice.

The amendments made to the claims are made for purposes of clarifying the invention and not for purposes of patentability.

The allowability of claims 9 and 21-23 is acknowledged. However, no amendments are thought to be necessary for the purpose for distinguishing over the prior art.

New Claims

New claims 28-31 are added to claim the invention in alternative language. The new claims are thought to be patentable over the cited references, because the references are not understood to teach or suggest the combination of limitations including a first voltage pin, a second voltage pin, and a first circuit implemented in programmable logic of the PLD and switchably coupled to one of the first and second voltage pins. The claimed PLD further includes a voltage detector coupled to the first and second voltage pins, and the voltage detector is adapted to switch coupling of the first circuit from the first voltage pin to the second voltage pin in response to a voltage drop at the first voltage pin. A battery charger in the PLD is coupled to the second voltage pin, and a battery controller is coupled to the battery charger. The battery controller implements at least two different charging processes for at least two different types of batteries and is adapted to control the battery charger with one of the at least two charging processes for charging a battery coupled to the second voltage pin. The cited prior art does not appear to suggest this combination of limitations, and

the new claims are therefore understood to be patentable over the cited prior art. The combination of limitations in claims 29-31 that depend from claim 28 are also understood to be patentable over the cited art.

Claim Rejections Under 35 USC §112

Claims 9, 13, and 21 are rejected under 35 USC §112, second paragraph. The amendment to claim 8 removes the alleged antecedent basis issue raised for claim 9. Claim 13 is cancelled; therefore the rejection of Claim 13 is moot. The amendment to claim 20 removes the alleged antecedent basis issue raised for claim 21. Therefore, this rejection is overcome.

Claim Rejections Under 35 USC §103(a)

The Office Action fails to show that claims 1-3, 13-15, 25 and 27 are unpatentable under 35 USC §103(a) over “Patino” (US patent no. 5,184,059 to Patino et al.) in view of “Fernandez” (US patent no. 5,637,413 to Fernandez et al.). The rejection is respectfully traversed, because the Office Action fails to show that all the limitations are suggested by the references, fails to provide a proper motivation for modifying the teachings of Patino with teachings of Fernandez, and fails to show that the combination could be made with a reasonable likelihood of success.

Claim 1, as amended with the limitations of claim 3, includes limitations of the critical circuit being implemented in programmable logic of the PLD and selectively connected to the battery voltage pin, and the voltage detector connected to the voltage source pin and selectively connecting the battery voltage pin to the at least one critical circuit in response to a voltage drop at the voltage source pin. It is respectfully submitted that the Patino-Fernandez combination is not shown to suggest these limitations. Specifically, no circuit of the combination is alleged or appears to suggest that a critical circuit is implemented in programmable logic of a PLD. Nor does the combination appear to teach or suggest the switch of voltage to the critical circuit from the voltage source pin to the battery voltage pin as claimed. If specific elements of the combination are thought to correspond to these limitations, then an explanation is respectfully requested. Otherwise, the rejection should be withdrawn.

Claim 2 depends from claim 1 and is patentable over the Patino-Fernandez combination for at least the reasons set forth above.

Claims 13-15 and 25-27 are now cancelled, and the rejection of these claims is therefore moot.

The alleged motivation for modifying Patino with Fernandez is conclusory and improper. The alleged motivation is that "it would have been obvious ... to include the teachings of Fernandez into the Patino system because it would allow the Patino system to protect batteries from over-voltage and thus protecting them from damage resulting from over-voltage." This alleged motivation is improper because no evidence is presented to indicate that the Patino system is susceptible to overcharging, nor is any evidence presented to indicate what elements of the Patino system would be modified or changed. Furthermore, the alleged motivation simply states the function of Fernandez without presenting evidence to support a modification to Patino. Thus, the alleged motivation is not supported by evidence, is based on hindsight, and is therefore improper.

The rejection of claims 1-3, 13-15, 25, and 27 over the Patino-Fernandez combination should be withdrawn because the Office Action fails to show all the limitations are suggested by the combination, fails to provide a proper motivation for combining the references, and fails to show that the combination could be made with a reasonable likelihood of success.

The Office Action fails to show that claims 4 and 16 are unpatentable under 35 USC §103(a) over the Patino-Fernandez combination as applied to claims 1-3, 13-15, 25 and 27, in further view of "Sahai" (US patent no. 5,698,971 to Sahai et al.). The rejection is respectfully traversed, because the Office Action fails to show that all the limitations are suggested by the references, fails to provide a proper motivation for modifying the teachings of the Patino-Fernandez combination with teachings of Sahai, and fails to show that the combination could be made with a reasonable likelihood of success.

Claim 4 depends from claim 1 and is patentable over the combination for at least the reasons set forth above in regards to claim 1. Furthermore, claim 4 includes

limitations of the battery controller further including end of life circuitry operatively coupled to the battery voltage pin. It is respectfully submitted that none of the cited references suggest the combined features of a charger along with end of life circuitry on a PLD. Sahai merely suggests end of life circuitry, but does not suggest any combination with a battery charger on a PLD. Thus, the limitations of claim 4 are not shown to be suggested by the Patino-Fernandez-Sahai combination.

The alleged motivation for modifying the Patino-Fernandez combination with teachings of Sahai is conclusory and improper. The alleged motivation states that "it would have been obvious to include the end of life circuitry taught by Sahai into the battery controller taught in the Patino-Fernandez system because it would allow an end of life condition associated with a battery to be recognized in order to allow a user to replace the old battery with a new one." This alleged motivation simply states the function of Sahai without presenting any evidence that would motivate the modification. Sahai's circuit is described in the context of a battery-using device (col. 1, l. 20-28), and the circuitry of the Patino-Fernandez combination is described in the context of a battery charger. There is no evidence presented to motivate combining the teachings. The alleged motivation is essentially based on hindsight because it uses the claim limitations as a template to piece together the prior art. Thus, the alleged motivation is improper.

Claim 16 is cancelled and the rejection of Claim 16 is therefore moot.

The rejection of claim 4 over the Patino-Fernandez-Sahai combination should be withdrawn, because the Office Action fails to show all the limitations are suggested by the combination, fails to provide a proper motivation for combining the references, and fails to show that the combination could be made with a reasonable likelihood of success.

The Office Action fails to show that claims 5, 17 and 26 are unpatentable under 35 USC §103(a) over the Patino-Fernandez combination as applied to claims 1-3, 13-15, 25 and 27, further in view of "Schwartz" (US patent no. 6,157,167 to Schwartz et al.). The rejection is respectfully traversed, because the Office Action fails to show that all the limitations are suggested by the references, fails to provide a proper motivation for modifying the teachings of the Patino-Fernandez combination with teachings of Schwartz, and fails to show that the combination could be made with a reasonable likelihood of success.

Claim 5 includes limitations of the battery controller including programmable logic resources, and the Office Action alleges that Schwartz's microprocessor teaches these limitations. Those skilled in the art will recognize, however, that programmable logic resources of a PLD are different from and are not taught by a microprocessor. Thus, the limitations of claim 5 are not shown to be taught or suggested by Schwartz. Furthermore, the alleged motivation for modifying the Patino-Fernandez combination with teachings of Schwartz is conclusory and improper.

Claims 17 and 26 are now cancelled and the rejection of these claims is therefore moot.

The rejection of claim 5 over the Patino-Fernandez-Schwartz combination should be withdrawn because the Office Action fails to show all the limitations are suggested by the combination, fails to provide a proper motivation for combining the references, and fails to show that the combination could be made with a reasonable likelihood of success.

The Office Action fails to establish that claims 6-8, 10, and 18-20 are unpatentable under 35 USC §103(a) over the Patino-Fernandez combination as applied to claims 1-3, 13-15, 25 and 27, and further in view of "Townesley" (US patent no. 5,666,006 to Townesley et al.). The rejection is respectfully traversed, because the Office Action fails to show that all the limitations are suggested by the references, fails to provide a proper motivation for modifying the teachings of the Patino-Fernandez combination with the teachings of Townesley, and fails to show that the combination could be made with a reasonable likelihood of success.

The rejection of claim 6 is traversed for at least the reasons set forth above in regards to the impropriety of the rejection of claim 1 in view of the Patino-Fernandez combination. Furthermore, the alleged motivation for modifying the Patino-Fernandez combination with Townesley is unsupported by evidence and improper. As with the other alleged motivations, this motivation is based on hindsight, made without supporting evidence, and is therefore improper.

As to claims 7 and 8, the Office Action does not cite any suggestion from the prior art as to the claim limitations. Instead, the Office Action improperly recites the function of the claim limitations and concludes that the limitations are obvious because the functions are known in the art. It is respectfully submitted that this basis for rejection is improper because no showing is made that the prior art suggests the specific claim limitations in the context of the overall invention. If the rationale were appropriate, all combinations of all types of inventions could be argued to be obvious since the functions of various individual limitations would be known to those skilled in the art. As with the other alleged motivations for combining or modifying references, this alleged modification is based on hindsight and improper.

As to claim 10, the voltage detector couples one of the first and second battery voltage pins to the critical circuit, which provides power to the circuit. The cited teaching (col. 1, l. 61-65) of Fernandez disconnects a battery pack from a charger. Thus, the Fernandez circuit does not suggest the limitations of claim 10.

As to claim 18, the Office Action does not show that the Patino-Fernandez-Townesley combination suggests fabricating a PLD by providing a selective connection between programmable logic of the PLD and one of the first battery voltage pin and

the second battery voltage pin; and providing a volatile memory for storing a plurality of charging algorithms and a plurality of charging methodologies, wherein a first charging algorithm and a first charging methodology are associated with a first battery connectable to the first battery voltage pin, and a second charging algorithm and a second charging methodology are associated with a second battery connectable to the second battery voltage pin. It is respectfully submitted that no teachings of the references are alleged to suggest the provision of a selective connection between PLD programmable logic and a battery voltage pin, and no teachings are cited as suggesting the claimed volatile memory on a PLD. Furthermore, these limitations are not apparent in the references. Therefore, the Office Action does not show that the Patino-Fernandez-Townsley combination suggests the limitations of claim 18.

Claims 19 and 20 depend from claim 18, and the Office Action does not show that these claims are unpatentable over the Patino-Fernandez-Townsley combination for at least the reasons set forth above.

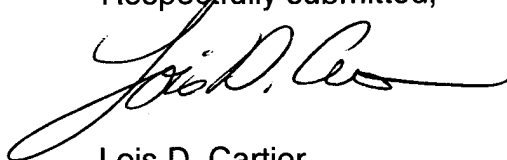
The Office Action fails to establish that claim 11 is unpatentable under 35 USC §103(a) over the Patino-Fernandez-Townsley combination as applied to claims 1-3, 6-8, 10, 13-15, 18-20, 25 and 27, and further in view of Sahai. The rejection is respectfully traversed for the reasons set forth above in regards to the impropriety of the Patino-Fernandez-Townsley combination and the Patino-Fernandez-Sahai combination.

The Office Action fails to establish that claims 12 and 24 are unpatentable under 35 USC §103(a) over the Patino-Fernandez-Townsley combination as applied to claims 1-3, 6-8, 10, 13-15, 18-20, 25 and 27, and further in view of Schwartz. The rejection is respectfully traversed for the reasons set forth above in regards to impropriety of the Patino-Fernandez-Townsley combination and the Patino-Fernandez-Schwartz combination.

CONCLUSION

Reconsideration and a notice of allowance are respectfully requested in view of the Remarks presented above. If the Examiner has any questions or concerns, a telephone call to the undersigned is invited.

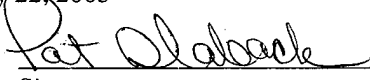
Respectfully submitted,



Lois D. Cartier
Agent for Applicants
Reg. No.: 40,941
(720) 652-3733

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patent, P.O. Box 1450, Alexandria, Virginia 22313-1450, on February 22, 2005

Pat Slaback
Name


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